What is claimed is:

1. A pneumatic tire, comprising a carcass layer arranged between a pair of left and right bead portions and an inner liner layer provided on an inner side of the carcass layer, wherein volume adjusting members are intermittently arranged between the carcass layer and the inner layer in the bead portions in a tire circumferential direction so as to change a sectional shape of a closed space formed between the tire and a wheel in the tire circumferential direction.

2. The pneumatic tire according to claim 1, wherein the volume adjusting members are arranged at equal intervals in the tire circumferential direction.

3. The pneumatic tire according to claim 1, wherein the volume adjusting members are made of rubber compositions and set in a range from 1 mm to 10 mm in thickness.

4. A method for manufacturing a pneumatic tire, comprising the steps of:

intermittently crimping volume adjusting members on both side sections of a sheet inner liner material in a longitudinal direction thereof beforehand;

winding the inner liner material on an outer peripheral side of a forming drum;

winding a sheet carcass material on an outer peripheral side of the inner liner material;

forming an unvulcanized tire containing the inner liner

material and the carcass material; and

vulcanizing the unvulcanized tire.

5. The method for manufacturing a pneumatic tire according to claim 4, wherein the volume adjusting members are arranged between the inner liner material and the carcass material.

6. The method for manufacturing a pneumatic tire according to claim 4, wherein the volume adjusting members are made of rubber compositions and set in a range from 1 mm to 10 mm in thickness.